

## MUNICIPAL REORGANIZATION: The Pittsburgh Fire Department as a Case Study

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**D**URING the second half of the nineteenth century, as American cities grew at a rapid rate, the character of their municipal institutions underwent profound transformation. Volunteer workers with local interests were increasingly replaced by a nascent centralized bureaucracy, as rationalization and efficiency became the tools in a search for domestic order and tranquility. What reasons account for the appearance of municipal bureaucratization? Why did it occur when it did, and who were the architects of municipal change? Using the Pittsburgh Fire Department as a case study, this article will examine the forces involved in the rationalization and systematization of Pittsburgh's governmental institutions. Through the reorganization of the old, chaotic, and inefficient volunteer fire system into a paid professionally staffed fire department, we shall investigate one city's attempt to deal with the problem of adjusting to rapid urban change.

From 1794 until 1870, fire fighting in Pittsburgh was a community effort conducted by citizens organized into volunteer fire companies. Originally the technology was quite rudimentary. Men pulled the primitive engines to a fire by means of long ropes, and citizens, whom the law required to keep leather buckets in their houses, formed bucket lines to supply water from the nearest cistern. Even after piped-in water and improved engines were available, the volunteer system remained. By 1870, Pittsburgh had twelve volunteer fire companies scattered throughout the city. On the whole, there was little adverse criticism of the volunteers' fire fighting capabilities; in fact, the volunteers were credited with saving several major buildings and preventing the further spread of the calamitous fire of 1845.

While fire fighting was the primary reason for their organization, the volunteer companies also performed a social function. They served as a meeting place where neighbors could carry on conversation and, probably, business.<sup>1</sup> In the early nineteenth century, the volunteer fire companies were local brotherhoods, usually organized and managed by the most respected members of the community. Membership ful-

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<sup>1</sup> Pittsburgh was not unique. Volunteer fire companies provided similar social functions in large cities like Boston, New York, and Philadelphia.

filled the public service which these men considered their civic duty. Admittance required nomination by a member and the support of the entire membership. In the early years of the nineteenth century, wealth was an important requisite for admittance. Funds were needed to purchase equipment, and a hefty treasury was a source of prestige to the company.<sup>2</sup>

By the 1820s and 1830s, however, while the "better" men chatted and socialized at the neighborhood fire company and other "select" organizations, the mass of working urbanites used Pittsburgh's streets as the center of their social life. Young men often gathered on street corners to talk, socialize, and sometimes, to brawl. In the decades of the 1830s and 1840s, business and professional men moved out of the volunteer fire company and joined other associations. As class lines began to harden, the tradition of public service and aristocratic involvement in municipal affairs also declined. The places of the "better" men were often filled by working class individuals seeking adventure. What had been "select" associations in the early nineteenth century became by mid-century private clubs for the city's rowdy elements. This social aspect of fire fighting bred the same sort of pride and adventure as that connected with neighborhoods. The sense of identity expressed itself in such rituals as elaborate parades and in battles with rivals. The prospect for a rough-and-tumble fight probably had much to do with the eagerness to join.

After a fire — and sometimes while getting to it — the followers of an engine company clashed in battles ranging from a brief fist fight to minor riots. Deep hostilities among volunteer fire companies produced a long series of minor battles that enlivened urban life. As time went on, Pittsburgh's volunteer fire companies became a serious source of local disruption. The volunteer system had been a product of necessity in the eighteenth century, when fire posed one of the greatest hazards to urban life. That danger persisted into the nineteenth century, but, while the problem of fire remained, the nature of the fire fighters had changed. A former member of the Hydraulic Company, reflecting upon his long years of service to the company, said that it was no fire company: "It was just a lot of young hoodlums who ran with the engine, fought each other and other companies, and squirted more water on the spectators than on the fire."<sup>3</sup>

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2 David R. Johnson, "Crime Patterns in Philadelphia: 1840-1870" (unpublished manuscript, Louisiana State University at New Orleans, 1971).

3 Frank C. Harper, *Pittsburgh of Today: Its Resources and People*, 4 vols. (New York, 1931), 1: 223.

During the 1840s and 1850s conflict between rival companies became a major source of organized violence. Though fire was still a major hazard, the volunteers' brawls had reached the point where most fires went unchecked because rival companies were too busy fighting one another to attend to the conflagration. As a company charged along the street in the direction of a fire, its opponent usually collided with it or lay in ambush. Any fire became an excuse for a fight. Whenever two companies met, the encounter usually ended in some sort of fight. Most engagements were short, but occasionally some went on for hours. As idle ruffians infiltrated the companies, the crowds that usually followed them changed. When rivals, reinforced by their supporters, met in the streets, the excitement of the moment combined with an eagerness for battle to produce an outbreak of violence. Moreover, discipline was nonexistent in the volunteer fire companies. Whiskey drinking was common at fires. Jealousy and intercompany rivalry greatly impaired their effectiveness. On one occasion in 1867, for example, one member of a fire company stood guard over a hydrant with a fireaxe to insure his company a monopoly on the water supply and threatened to kill any man who tried to attach his hose to the plug.<sup>4</sup>

Deeply rooted social conditions accounted for much of this warfare. Religious and ethnic differences provided an excuse for conflict. Many volunteers came from the same neighborhood. While this gave cohesion to an outfit, it also made the company competitive along similar lines. The internal structure of these organizations also contributed to a pugnacious nature. Firehouses were constructed to act as a haven or meeting place for members.

At the same time as violence seemed to be gaining momentum, however, other factors were at work imposing discipline and order on urban society. The efforts of reform-minded business leaders, the concurrent improvement of other municipal institutions like the police department, the introduction of alternative governmental forms, and the emergence of bossism, all contributed to the promotion of urban stability. Pittsburgh's more orderly citizens did not remain passive bystanders while rowdy elements indulged themselves in an assortment of fights, assaults, and riots. Sentiment on behalf of reorganization of the volunteer fire system came primarily from businessmen and politicians.<sup>5</sup>

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4 Ibid., 225.

5 See editorial comment in the *Pittsburgh Gazette*, Sept.-Nov. 1869.

By 1870 Christopher L. Magee had embarked upon his long and successful career. A student of city government, Magee analyzed municipal government in New York and Philadelphia and became convinced that bossism could be made safe and secure. In time, all Pittsburgh came to regard him as its leading citizen. He served as president of the Consolidated Traction Company, owner of the *Pittsburgh Times*, cashier of the city treasury, and city treasurer.

With the help of Magee and his fledgling Republican machine, the volunteer fire companies were reorganized into the Pittsburgh Fire Department. What were Magee's motives? The litany of violence committed by the volunteer companies was common knowledge. By bringing the volunteer fire companies under more direct control through the Board of Fire Commissioners and Chief Engineer, Magee established order while, at the same time, eliminating the vexatious problem of neighborhood violence that had plagued Pittsburghers for decades. He placated the volunteer companies by seeing to it that former volunteer firemen assumed high positions in the reorganized fire department, effectively neutralizing an unstable political and social force and making it part of his political apparatus.

Politicians were not the only people who sought urban stability and tranquility. Pittsburgh's leading businessmen thought domestic order essential for conducting an efficient and productive business enterprise. Consequently, the city's reform-minded business leaders also led the effort to reform the old fire department. Moreover, with the city covering an area of twenty-two square miles, and the city streets and river fronts lined with expensive manufacturing and business structures, businessmen decided that the time had come when good fire protection could be obtained only through the organization of a professional fire department, whose members should be paid, and who should give their whole time to the job of fighting fires.

These businessmen had a vested interest in reducing the number of fires in Pittsburgh and upgrading the quality of the fire department. The business sector of Pittsburgh's economy traditionally sustained a higher rate of loss from fire than home dwellers. While statistics are scarce, figures do show that over 60 percent of the fires prior to 1870 occurred in business and commercial structures.<sup>6</sup> Moreover, the business and industrial community suffered a considerable percentage of the total loss from fire; hence, the best interests of the business sector and good business sense compelled it to control loss from fire.

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<sup>6</sup> Superintendent of the Fire Alarm Telegraph, *Records of the Fire Alarm Telegraph, 1866-1870* (Pittsburgh).

By 1870 leading businessmen and industrialists had begun to think of the city as a corporation, and that it should be managed as such. Beliefs such as this had an effect on the reorganization of the Pittsburgh Fire Department. If we compare the management of a corporation with that of the Pittsburgh Fire Department, we find the same attitudes. As businesses grew in size and complexity, managerial skills became more vital to their success. Those who knew how to manage large corporations efficiently issued the orders, while the technicians merely carried them out. In the case of the Pittsburgh Fire Department, the situation was strikingly similar. Having come from business backgrounds, proponents of reorganization like Magee, R. W. Mackey, M. K. Morehead, and John J. Torley considered it not only judicious but natural to operate the department like any large corporation. Governmental restructure logically resulted. Rather than the antiquated and chaotic volunteer fire system, with all companies independent of one another, sound corporate management dictated a more rigid control of the twelve autonomous volunteer companies. Corporate bureaucracy was transferred to the political arena.

Legislative action was necessary for such reorganization, and since there was no political opposition, it was obtained without difficulty. The Pennsylvania state legislature passed the required legislation early in 1870 and on March 23, 1870, Governor Geary signed "An Act to Establish the Pittsburgh Fire Department." The act contained only three sections but it granted substantial powers: "It permitted the Councils of the City of Pittsburgh to establish, organize, and control a Fire Department for the City of Pittsburgh and to provide for the expenses thereof."<sup>7</sup>

Immediately after the state had acted, the city councils began to formulate an ordinance to carry out the provisions of the state law. Finally, on April 14, 1870, the measure became law. It provided that the councils meet and elect nine city residents to a Board of Fire Commissioners. The fire commissioners were to form a fire department, manage all officers, men, and property, and "take action for the prevention and extinguishment of all fires in the city of Pittsburgh."<sup>8</sup> Three commissioners would serve three-year terms, three would serve two-year terms, and three would serve for one year. They received no salary and no commissioner could be a member of the councils.<sup>9</sup>

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<sup>7</sup> Board of Fire Commissioners, *First Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1871), 62.

<sup>8</sup> *Ibid.*, 63.

<sup>9</sup> *Ibid.*

Another section provided that all real and personal property be turned over to the commissioners.<sup>10</sup> The board provided all supplies, tools, and apparatus necessary to fight fires. The location of the fire stations was also under the board's jurisdiction.

The following men comprised the first Board of Fire Commissioners elected in 1870: Henry Hays, R. W. Mackey, John J. Torley, W. M. McKelvey, M. K. Morehead, John H. Stewart, John H. McElroy, Robert Finney, and Thomas Reese.<sup>11</sup> This board was distinguished by some of the most influential men in the city. Henry Hays, first president of the board, was a prosperous merchant. George Wilson, the second president, was a leading wholesale grocer. R. W. Mackey was a leading financier and political figure in Pennsylvania. John J. Torley was a successful manufacturer. M. K. Morehead figured prominently in Pittsburgh industry, while John H. McElroy was a popular Pittsburgher and well-known businessman.<sup>12</sup> Jenkin Jones and James A. Chambers, who sat on the board from 1873 to 1876, succeeded in amassing fortunes in the glass industry and prized themselves on being public-spirited citizens. Alexander Pitcairn was in the travel business. John Larimer, William N. Erwin, and William Coates all came to the board after successful careers in the iron industry. William B. Hays, after losing a fortune in one business, recouped his losses in the nascent oil industry. Dr. A. E. McCandless, a successful physician, entered politics and achieved significant power. William Flinn also made a fortune in industry. C. L. Magee enjoyed a national reputation as a wise political leader, but he was also a sagacious businessman and newspaper editor. Finally, Benjamin Darlington, a wealthy Pittsburgher, served seven years as president of the board.<sup>13</sup>

These men were responsible for the reorganization of the Pittsburgh Fire Department. All were successful businessmen with a stake in the welfare of the city, and they possessed the ability to see the structure of the department as a whole and to appreciate its interrelationships. What can be called the elimination of friction between individual personalities, as well as between the separate parts of the larger enterprise, was as important to these men as the proper oiling

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10 Ibid., 64.

11 Charles T. Dawson, ed., *Our Firemen: The History of the Pittsburgh Fire Department from the Village Period Until the Present Time* (Pittsburgh, 1889), 67 (hereafter cited as Dawson, *Firemen*).

12 Ibid., 75.

13 Ibid., 76.

of a machine that produced goods in an industrial plant. It is also significant that Mackey, Morehead, and Torley had all been members of prominent volunteer fire companies. They formed a link between the old department and the new. Some, like Christopher Magee, were highly successful political chieftains. As the department grew, the office of fire commissioner became a vehicle of political influence. As a result, all men on the board wielded considerable power.<sup>14</sup> They were responsible for deciding where new stations were to be located and who should construct them, who should be appointed to the force, and who would receive promotions.

Along with the fire commissioners, the chief engineer and his subordinates played a crucial role in the restructure of the Pittsburgh Fire Department, because they ran the department on a day-to-day basis. The chief engineer acted as a stabilizing force within the department, harmonizing the concerns of the men with the requirements of the board.

John H. McElroy, a member of the old Niagara Volunteer Company, was the first chief engineer. In 1870, while still holding an executive position with the Pittsburgh Gas Company, he temporarily assumed his new office. Even though his tenure was short, he provided an invaluable service by organizing the divergent interests of the volunteers who had been urged to enter the reorganized department. He was succeeded in 1871 by Andrew J. Cupples. Cupples also had belonged to the old Niagara Company. While he was a good practical fireman, he found the details of his administrative position tedious and onerous and he retired to assume the job of stoker of Engine Company No. 14. William J. White became the third chief engineer in 1873. Following the pattern set by his predecessors, White had served as a member of the old volunteer Eagle Company. During his administration, the department increased and generally improved; while large fires increased across the country, Pittsburgh had relatively few large and costly fires. In 1875 John Hamill succeeded William White as chief engineer. Hamill had a good reputation as a member of the Duquesne Volunteer Company. Because of illness, however, Hamill held office for only a short time.<sup>15</sup>

What generalizations can be made regarding the chief engineer of the newly reorganized department? From 1870 until the Pittsburgh Fire Department was consolidated into the Bureau of Public Safety

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14 *Ibid.*, 73.

15 *Ibid.*, 77-79.

in 1887, five men held the position of chief engineer. Their average age was forty-two, the youngest being Cupples at thirty-seven and the oldest Samuel Evans at forty-seven. John H. McElroy was superintendent of the Pittsburgh Gas Company. His brother, Samuel McElroy, was foreman of McIntosh-Hemphill and Company.<sup>16</sup> Andrew Cupples worked as a molder. William J. White was a chair maker, and John Hamill was a nailer.<sup>17</sup> With the exception of McElroy and Evans, for which no information is available, three of the five were skilled craftsmen. Most important, the chief engineers, especially John McElroy, played a crucial role in forming an important link between the old volunteer departments and the new paid department.

Political considerations clearly were important in the appointments of chief engineers. The commissioners in 1870 knew the political influence that powerful volunteer companies like the Niagara, Eagle, and Duquesne had exerted in the past. As the choice of McElroy clearly shows, the appointment of the chief engineer was made to mollify the influential companies, urge them to join the paid department, neutralize a potentially dangerous political force, and strengthen the political machine of Christopher Magee by naming some men to high positions who belonged to the very organizations that he wanted to control. Appointing such men to high positions was, in effect, an attempt to control a source of social disruption.

Scanning the employee lists of the paid department reveals an age discrepancy between the top leadership and the rest of the membership. For example, the average age of the chief engineer was forty-one, but the average age of the membership was thirty; most men were between twenty-five and thirty-four. Since the fireman's life was not particularly pleasant, individuals in the upper classes did not find the work very attractive. Moreover, through the years they had become estranged from municipal service. Firemen came, therefore, from the lower-middle classes in urban society. Most of the men had been artisans or skilled laborers prior to becoming firemen. Occupations such as molders, machinists, clerks, teamsters, and painters were numerous.

In the 1870s, however, the ethnic complexion of the department was not as disparate as it would become in the 1890s; Anglo-Saxon and Irish parentage predominated. At least one Irish volunteer company was organized on the South Side in 1870. It mustered eighty

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16 J. W. Fawcett, "Quest for Pittsburgh Fire Department History," *Western Pennsylvania Historical Magazine* 49 (Jan. 1966): 50.

17 *First Annual Report . . .*, 25.

men and was led by John Richardson. But the South Pittsburgh Hose Company was incorporated into the paid department in 1873, when the reorganized department was extended south of the Monongahela.<sup>18</sup>

The transformation from a volunteer to a paid department proceeded peaceably, with few incidents of jealousy or intradepartmental rivalry. Because of the violent history of the volunteer fire system, however, some apprehension about intradepartmental rivalry, discipline, and behavior did exist. It is clearly manifest in the extremely rigid and firmly enforced rules of the department. No liquor was allowed in any engine or other house belonging to the department, or at any fire. In fact, no member of the department could enter or remain in a store selling liquor during working hours. Card-playing, political or religious discussions, and swearing were prohibited. No smoking was allowed on department property. Officers were to be treated in accordance with their rank, and insubordination or infractions against any ordinance of the city dealing with the fire department carried the penalty of suspension or dismissal. The engine companies were to be out of their houses within one minute after an alarm sounded. Absence from a fire without a good and sufficient cause subjected the person to suspension or dismissal. Racing from fires was forbidden under any circumstances, and was rigidly enforced by dismissal. No fireman was allowed to sleep in the engine house from 7:00 A.M. to 7:00 P.M., unless he had been on duty the previous night.<sup>19</sup> Finally, members of the department who neglected to wear their badges and uniforms were liable to suspension or dismissal.

Considering the strict rules, infractions were not frequent. In 1876 the Committee on Complaints and Charges heard and acted on only thirty-three cases of infractions, mostly violations of Articles 12, 14, 20, and 23 of the departmental rules and regulations.<sup>20</sup> In 1878 there were only twenty-seven cases of rule violations.<sup>21</sup> In no cases were there any reports of intradepartmental rivalry or jealousy. On the whole, members of the department behaved in a professional and businesslike manner because, as the reorganizers intended, the department was a municipal corporation.

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18 Dawson, *Firemen*, 64.

19 "Rules and Regulations of the Government of the Pittsburgh Fire Department," *Sixth Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1875), 101-102 (hereafter cited as "Rules and Regulations").

20 Board of Fire Commissioners, *Seventh Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1877), 35-36.

21 Board of Fire Commissioners, *Ninth Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1879), 19-20.

As the bureaucratic structure supporting the new department grew, management problems became just as important as fire fighting. Overhead — those expenses not directly related to the job of fire fighting — occupied an ever larger space in the cost journals of the new Pittsburgh Fire Department. This is clearly shown if one scans the annual reports of the Board of Fire Commissioners; they reveal that one-third of the reports were concerned with fiscal matters related to the cost of operating the department.

Just as in corporations and governments, the Board of Fire Commissioners, under the reorganization, set up standing committees to handle finance, building, and real estate, and to supervise the procurement of supplies, feed, apparatus, and horses. Still other committees dealt with complaints and charges, the fire alarm telegraph, and fire escapes. When the paid department was created in 1870, the board paid more attention to defining the lines of authority and responsibility between the individual fireman and his foreman, the foreman to his assistant chief, and the assistant chief to the chief, than to determining the most effective way to fight fires.<sup>22</sup>

Because much of the cost of operating a centralized fire department consisted of items like maintenance, wages, and interest, which were not directly related to the job of fire fighting, the board concentrated on detailing their accounting. By the mid-1870s, they were making the analysis of expenditures into an exact science. The 1878 *Annual Report of the Board of Fire Commissioners* detailed lists of expenses for salaries, office expenses, house supplies, house repairs, fuel, light, apparatus, horses, horse expenses, feed, harness material, hose, miscellaneous supplies, sundry expenses, and real estate.<sup>23</sup> No expense was too small to escape being reported. In the 1874 *Annual Report*, for example, \$1.50 was paid on October 8 for Post Office rent. On November 13, lumber was purchased for \$.93. On December 10, \$2.40 was recorded under "House Supplies" for two spittoons.<sup>24</sup>

The fire department, conscious of its image in the community, used the uniform, which some volunteer companies had previously used, to instill professional awareness into the membership and the public at large. The effect of the uniform was to transfer loyalty from one particular volunteer company to the entire paid department. Arti-

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22 See "By-laws and Rules Adopted by the Board of Fire Commissioners of the Pittsburgh Fire Department," in *First Annual Report . . .*, 59-61.

23 *Ninth Annual Report . . .*, 7-18.

24 Board of Fire Commissioners, *Fifth Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1875), 16, 18, 19.

cle 35 of the rules and regulations of the department required every fireman to wear his uniform on duty.<sup>25</sup> Violators were subject to suspension or dismissal. Close scrutiny of the rules reveals other examples. Article 18 required all department members to observe a "courteous demeanor" in their speech. Officers and men had to be careful to employ the surnames of those to whom they spoke, and in a respectful manner.<sup>26</sup> Noisy conversation and boisterous conduct by members of the department while on duty was expressly forbidden. Put succinctly, the department expected its members to be paragons of virtue. They could not smoke, drink, use profane language, speak loudly, or behave in any disrespectful manner. The firemen were members of a municipal institution, and their demeanor constituted a source of pride for the city.

Another way in which the Pittsburgh Fire Department reflected the new business enterprises was the department's dedication to technology. The reorganizers of the old volunteer system had known that where technical and administrative matters were concerned, one centrally administered fire department was more desirable than twelve autonomous volunteer companies. They also knew that improvements in fire apparatus and equipment were essential for increased effectiveness. For example, in January 1871, employees' salaries totaled \$66,555.77. The equipment consisted of six steam fire engines (three second-class double-plunger engines and three second-class "harp" single-tank engines) with hose companies; two hook-and-ladder trucks with an aggregate ladder length of 305 feet, with pole hooks; one hose company in the Seventeenth Ward; one hose company near Soho Run; one steam engine and one hose carriage, in use as a substitute; one steam engine not in use because of excessive weight; and twenty-four horses. The number of employees in 1871 totaled sixty-nine. The fire alarm telegraph, used jointly with the police, consisted of sixty-five miles of wire and ninety-seven signal boxes. The fire plugs numbered 410.<sup>27</sup>

Since it was placed in service in 1866, the fire alarm telegraph had allowed the companies to react faster than ever before to the outbreak of fire. The department steadily expanded the telegraph system. By 1873 it had been extended to the South Side and the East End. Expenses for the telegraph totaled \$27,624.31 in 1873, the fourth

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25 "Rules and Regulations," Article 35, *Ninth Annual Report . . .*, 63.

26 *Ibid.*, 61.

27 *First Annual Report . . .*, 25-35.

largest expenditure in the budget.<sup>28</sup> Only salaries, house construction, and apparatus expenses exceeded the cost of the fire alarm telegraph. It had become an integral part of the fire fighting capability of the department. One reason for its continued success was its remarkable reliability. At no time in 1873 did the telegraph malfunction, and in subsequent years the number of malfunctions was minimal.

Over the years, the expense of these items increased substantially. When the fire commissioners made their report to the councils for 1870, they asserted that the original appropriation was larger than would be required for future years. But they did not take into consideration the rapid growth of the city. By January 1, 1872, the commissioners had found it necessary to construct and equip another engine house, to be located in the Hill District. The outlying Seventeenth Ward also clamored vociferously for adequate protection. The result was a considerable increase in the operating costs of the department, which ultimately reached \$88,252.82.<sup>29</sup> The commissioners, sensing possible alarm at the increased expenses, countered by stressing the marked decrease in fire losses, which amounted to \$164,534.80, or less than one-fourth of the losses of the previous year.<sup>30</sup> Increased employee efficiency was credited with the decline. To back up their assertion, the commissioners pointed to the fact that during the year many fires occurred which threatened to become quite destructive, but at none did all the apparatus go into service. In fact, in only two cases did the fire spread beyond the building in which it was discovered, and then the loss was slight.

By January 1, 1879, the department had grown to 127 men, divided into sixteen companies, with twelve steam engines and hose carriages attached (one of the engines kept for extra duty), three hook-and-ladder trucks, and hose carriages run by separate companies. The number of men was curtailed in 1876 and 1877 because of insufficient appropriations. In 1879, the need for new hose was given paramount importance. Of the total hose footage of 21,000 feet, 1,350 feet of linen hose was bad or inferior.<sup>31</sup>

By 1887 when the fire department was consolidated into the Bureau of Public Safety, the number of men had climbed to 173.<sup>32</sup>

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28 Board of Fire Commissioners, *Fourth Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1874), 7, 12.

29 Dawson, *Firemen*, 68.

30 *Ibid.*

31 *Ninth Annual Report . . .*, 43.

32 Board of Fire Commissioners, *Sixteenth Annual Report of the Board of Fire Commissioners* (Pittsburgh, 1887), 54.

Newer and better equipment had been purchased over the years; by 1887 the department boasted eleven double steam engines, five single-type steam engines, twenty-one hose carriages, and four hook-and-ladder trucks.<sup>33</sup> As in previous years, adequate hose generated a real concern. The department estimated a need for at least 15,000 feet of additional hose for the coming year.<sup>34</sup>

While the department grew steadily after 1870, various technological improvements helped increase efficiency. The speed of the department in answering fire alarms was increased when Joseph Busha, engineer of Engine Company No. 4, invented a device whereby a slate was connected to the gongs in the engine house. This innovation provided a visual record of the alarm and lessened the possibility of error in counting the alarm.<sup>35</sup> It also allowed all members of the company to hitch up the horses and answer the call quicker. Within two years the development was in use nationwide. Another innovation was the use of patent heaters on the steam engines. The heaters kept up the steam in the boilers of the engines so that the engines were ready for immediate use.<sup>36</sup>

But while the department sought new innovations to help it fight fires more efficiently, it was hampered by other problems. Proper facilities were not always available for adequate fire fighting. One of the primary necessities was water, without which firemen could not fight fires successfully. In 1873 the South Side, in particular, was plagued by inadequate water supplies and poor roads.<sup>37</sup> The only solution lay in constructing large wells at convenient places at enormous cost or the purchase of several new chemical fire engines. These new engines gradually played an important part in helping fight fires where water was not available, or chemical fires where water was not desirable.

Even though the various improvements increased the efficiency of the fire department, the annual number of fires increased. As a result, the Pennsylvania legislature passed a bill on June 11, 1879, requiring fire escapes in all buildings where people were employed and in all public offices.<sup>38</sup> In case of fire, these buildings had to provide a perma-

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33 Ibid.

34 Ibid.

35 *Fifth Annual Report . . .*, 8.

36 *Fourth Annual Report . . .*, 26.

37 Ibid.

38 Robert T. McElroy, ed., *Pittsburgh Digest: A Digest of the Acts of Assembly Relating to and for the General Ordinances of the City of Pittsburgh from 1804 to November 12, 1908* (Pittsburgh, n.d.), 159.

ment, safe, external means of escape, independent of all internal stairways. Inspections would be made and certificates issued to all owners whose structures conformed to the law. Owners not complying with the statute could be found guilty of a misdemeanor, punishable by a fine of \$350.00, a six-month prison term, or both. In 1883 the legislature required owners of private colleges, schools, seminaries, halls, and other public buildings, whose structures were higher than two stories, to provide chain and rope conveyances near windows to allow people to flee from fire.<sup>39</sup> Hallways and stairwells had to be lighted at night and fire alarms had to be easily accessible and heard throughout the building.<sup>40</sup> Thus, in the late 1870s fire safety as well as control of fires became a function of the Pittsburgh Fire Department.

In 1887 the Pittsburgh City Councils merged the fire department into the Bureau of Public Safety, ending its sixteen-year history as an independent bureaucracy. During this period fire-related violence had declined, as strict rules, harsh penalties, and a sense of professionalism lessened the disorder that had characterized the volunteer fire system. After 1870 newspaper editorials rarely criticized the fire department. In addition, despite continued poor roads and inadequate water supplies,<sup>41</sup> the reorganized department was clearly more efficient and professional than its predecessor. In sixteen years, while the rate of fire alarms climbed over 400 percent, monies appropriated to the department declined.<sup>42</sup> In spite of the cut in appropriations, departmental efficiency, fiscal management, and technological improvements allowed the fire department to maintain an adequate fire fighting capability. During this period the net fire loss, i.e., the gross fire loss minus the insurance paid, which the department itself used as a barometer of its effectiveness, showed no measurable increase. Greater insurance coverage as well as departmental efficiency, however, obviously played a significant part of these figures.

COMPARATIVE YEARLY STATEMENT OF FIRE ALARMS AND LOSSES

<i>Year</i>	<i>Alarms</i>	<i>Gross Loss</i>	<i>Insurance Paid</i>	<i>Net Loss</i>
1870	156	\$751,465	\$320,955	\$430,910
1871	163	164,534	113,023	51,511
1872	179	146,482	114,685	31,797

39 *Ibid.*, 161.

40 *Ibid.*, 161-62.

41 In 1878, for example, just two fires accounted for half the gross total loss of \$216,000.00. See *Ninth Annual Report . . .*, 21.

42 *Sixteenth Annual Report . . .*, 42.

1873	227	211,989	152,789	59,200
1874	267	258,681	185,144	73,537
1875	195	368,351	319,235	49,116
1876	247	203,489	118,180	85,309
1877	297	607,405	411,029	196,376
1878	237	216,439	176,922	39,517
1879	376	142,561	79,344	63,217
1880	352	179,442	141,974	37,468
1881	367	135,753	122,630	13,124
1882	460	483,137	323,795	159,342
1883	486	207,000	156,000	51,000
1884	507	332,333	300,636	31,796
1885	524	203,558	175,532	28,026
1886	663	360,715	289,130	71,585

Thus, in just sixteen years, the Pittsburgh Fire Department had been transformed from an inefficient, unwieldy, and disruptive city force into an able, efficient, professional, and vital element of the municipal apparatus of the city of Pittsburgh. The decision to reorganize the volunteer fire companies into a paid department in early 1870 had stemmed from the increased concern over the inefficiency of the volunteer system, the violence associated with the volunteer companies, and the desire of politicians, like C. L. Magee, to bring the volunteers under their political control.

By 1870 the core of the city of Pittsburgh was increasingly devoted to central business district functions and the construction of new expensive structures increased the potential of high fire losses. The volunteer companies, staffed largely by amateurs and lacking adequate financial resources, no longer could protect the city from fire. New, more efficient means of municipal administration borrowed from the business world were deemed necessary to operate and manage successfully a fire department in a constantly expanding city. Pittsburgh's leading businessmen lent their enthusiastic support to governmental restructure in order to promote more efficient and systematic municipal administration. They traditionally had sustained a higher rate of loss from fire than home dwellers, and it was in their best interest to lessen the hazard of fire. They thought of the city as a corporation to be operated as smoothly and efficiently as possible.

While businessmen sought an efficient fire department, home dwellers thought reorganization would bring a degree of order to

Pittsburgh's streets and eliminate the vexatious problem of inter-engine company rivalry and warfare. The volunteer fire system had become a source of social disruption in the neighborhoods by mid-century, when disorderly elements of society replaced the "better citizens" who had originally staffed the volunteer companies. The end of fire-related violence, coming with the reorganization of the department, satisfied their expectations of municipal bureaucracy. The numerous citizens' complaints that had formerly appeared in the newspapers concerning the rowdyism of the fire department now ceased.

Finally, Pittsburgh's politicians, especially C. L. Magee, supported reorganization because they saw a professional fire department as a source of power and as a means to achieve more centralized municipal control. By appointing potentially dangerous political opponents to key positions such as chief engineer or a seat on the Board of Fire Commissioners, Magee not only strengthened his power but restored order and stability to the city.

Thus, Pittsburgh's leading businessmen and politicians joined together and lent their support to reorganization. Localism and volunteerism were replaced by a burgeoning bureaucracy. Efficiency and order replaced inefficiency and chaos. All across the nation cities searched for order. As traditional institutions proved incapable of dealing with the stresses of rapid urbanization, a new bureaucracy based on rationalism and systematization took their place.<sup>43</sup> In this respect municipal bureaucratization in Pittsburgh was a manifestation of one city's attempt to deal with the national phenomenon of rapid urban growth.

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43 See Robert H. Wiebe, *The Search for Order, 1877-1920* (New York, 1967) for an excellent examination of this problem.